

State Monitoring, Assessment, and Reporting Program Grants and Cooperative Agreements—Request for Proposals (RFP)

OVERVIEW:

1. Sponsor: Environmental Protection Agency, Office of Water
2. Title: Demonstration of Randomized-design for Assessment of Wadeable Streams
3. Announcement Type: Initial announcement of request for pre-proposals
4. Funding Opportunity Number:
5. Catalog of Federal Domestic Assistance (CDFA) Number(s): 66.436
6. Key Dates:
 - a. Pre-proposals due – December 19, 2003
 - b. Final proposals due – March, 2004
 - c. Training – January to March, 2004
 - d. Field work – March to October, 2004
 - e. Data available for analysis – April 2005
 - f. Ecoregional and national reports – December 2005

State Monitoring, Assessment and Reporting Program Grants and Cooperative Agreements are intended to provide eligible applicants an opportunity to participate in a demonstration project to apply a consistent set of monitoring protocols to characterize the extent of wadeable rivers and streams that are in healthy or degraded condition at the ecoregion level II scale (see Appendix B) across the United States. This project will be a demonstration of the first step in an integrated monitoring framework, characterizing the potential extent of water quality problems. The demonstration project will utilize random sampling of wadeable rivers and streams for core indicators of water quality (see Appendix D) to provide a comprehensive assessment, with documented confidence, of the extent of wadeable rivers and streams that support healthy aquatic communities across the country. This effort will provide important information to states and the public about the status of aquatic resources, information that does not currently exist for large parts of the country. This effort will result in the description of the health of wadeable streams at the ecoregion level II scale and the national scale.

A primary focus for this RFP is to encourage interested states that have not already undertaken random sampling using a consistent set of indicators to participate in a demonstration project for wadeable streams that will generate a report on water quality for level II ecoregions across the U.S. A number of states, including those in EPA Regions 8, 9, and 10, have already conducted random sampling using the consistent set of indicators described in Appendix D. Priority will be given to projects that propose to implement this approach in other areas of the country. A secondary focus of this RFP is to encourage states that already have consistent data to engage in discussions on development of data analysis procedures to facilitate consistent interpretation of aquatic condition at the ecoregion scale.

Under this current RFP, state and tribal water resource protection programs are eligible to apply for cooperative agreements of \$50,000 to \$500,000. Other organizations eligible for funding under CWA Section 104(b)(3) such as interstate commissions or associations, intertribal consortia, universities, municipalities, and non-profit organizations may also apply in cooperation with states and tribes. Consortia of multiple states or tribes must identify which eligible organization will be the recipient of the assistance agreements, and which eligible organizations(s) will be subawardees of the recipient. The amount of each award will reflect the number of monitoring sites within the scope or jurisdiction of an application. It is envisioned that the larger awards will go to consortia of multiple states and tribes, while applications from single

jurisdictions will receive smaller awards. This document describes the selection and award process for eligible applicants interested in applying for State Monitoring, Assessment and Reporting Program Grants and Cooperative Agreements.

FOR FURTHER INFORMATION CONTACT:

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Request for Proposals for Cooperative Agreements for Demonstration of Randomized-design for Water Quality Assessment of Wadeable Rivers and Streams

The Catalog of Federal Domestic Assistance number for State Monitoring Program Development Grants and Cooperative Agreements is 66.436

1.1 Background

Several recent reports have identified the need for improved water quality monitoring and analysis at multiple scales. In 2000, the General Accounting Office reported that EPA and states cannot make statistically valid inferences about water quality and lack data to support key management decisions. In 2001, the National Research Council recommended EPA and states promote a uniform, consistent approach to ambient monitoring and data collection to support core water quality programs. In 2002, the H. John Heinz III Center for Science, Economics, and the Environment found there is inadequate data for national reporting on fresh water, coastal and ocean water quality indicators. The National Association of Public Administrators (NAPA) stated that improved water quality monitoring is necessary to help states make more effective use of limited resources. EPA's Report on the Environment 2003 says that there is not sufficient information to provide a national answer, with confidence and scientific credibility, to the question, 'What is the condition of U.S. waters and watersheds?'

In March 2003, EPA issued the *Elements of State Water Monitoring and Assessment Program* guidance to provide a framework for strengthening state monitoring programs. Every state water monitoring and assessment program should have as its foundation a long-term strategy that addresses how all water management needs will be met in all waterbody types in the state. The program should be driven by a clear set of monitoring objectives that reflect the data and information needed to support water quality management decisions. The strategy should describe the combination of monitoring designs and assessment tools that best meet those objectives. It should use a common set of core water quality indicators that can be supplemented with additional indicators as appropriate; maintain peer reviewed and updated quality assurance plans; use accessible data management systems; and report on its water quality findings in a timely manner. Further, each program should clearly spell out its resource needs and regularly revisit its progress toward meeting those needs. EPA is working with the states to help them fully implement these basic elements and to strive to ensure that they have the resources to do so.

An important objective for state and tribal comprehensive monitoring strategies is that they maximize the efficiency of monitoring and assessment resources. EPA agrees with the NAPA

finding that investing in efficient monitoring and assessment programs will result in social costs savings by ensuring that the resources invested in environmental protection activities are addressing the greatest need and are achieving performance objectives. In addition, the successful use of market-based approaches like trading depends on adequate monitoring data and information.

10 EPA is working with federal and state partners to develop and promote the use of multiple monitoring tools to most efficiently answer water quality management questions at multiple scales. Examples of these tools include statistically-based surveys, predictive models, remote sensing and targeted monitoring. Used in combination, these tools can help focus and prioritize site-specific monitoring activities to identify and address problem areas as well as achieve comprehensive assessments of water quality. Integrating these tools into state monitoring program designs should help states meet multiple state and national monitoring objectives cost-effectively.

20 This RFP focuses on a demonstration of one such tool, statistical-based or random sampling design. This tool is an efficient way to determine the extent to which waters support healthy aquatic communities. Detailed information collected about the health of aquatic communities in a random sample of wadeable rivers and streams can be used to make inferences, with documented confidence, about the condition of the larger universe of similar waters – a universe that may currently be largely unassessed. This design can be implemented at a national, state, or local level to provide a benchmark about how much of the resource needs protection or restoration. Once fully implemented, it can result in significant cost savings over the more traditional, census-based monitoring design because far fewer measurements are needed. It is also a cost-effective means of determining trends over time.

1.2 Description of Priority Activities

30 The long-term goal of the Environmental Protection Agency's (EPA) State Monitoring, Assessment and Reporting Program Grants is to support states' implementation of monitoring strategies that most efficiently support the full range of water quality management decision needs. A key decision need cited in numerous critiques of current monitoring programs that is largely unmet is the ability to generate comprehensive assessments of all water resources in the nation, a state or tribe. This information gap limits the nation, states and tribes' ability to put water quality condition in context of other management priorities and limits states and EPA's ability to describe the condition of the nation's waters and assess the effectiveness of Clean Water Act programs. Addressing this gap is a high priority for water quality managers.

40 The *Elements of a State Water Monitoring and Assessment Program* document recommends that monitoring strategies include the use of biological assessment methods and randomized designs to assess the aquatic life goals of the CWA for different water resource types. These activities are key to generating cost-effective, comparable assessments of water resources at local, state and national scales. EPA hopes to build from (and continue) the success of national, regional, state, tribal, and local partnerships such as the National Coastal Assessment, the Assessment of Western Rivers and Streams, the Northeastern Lakes Study, the Mid-Atlantic Integrated Assessment, and the Southern California Coastal Water Research Project.

50 Proposals that contribute to generating assessments of wadeable rivers and streams at ecoregion level II scale using a consistent suite of core indicators and randomized design will receive highest priority for funding under this grant cycle. A number of states, including those in Regions 8, 9, and 10, have already conducted random sampling using indicators described in

Appendix D. Given the limited resources available for this initial request for proposal, the immediate priority will be given to projects that propose to sample for indicators described in Appendix D in other areas of the country. Key components of successful proposals include:

- Use of randomized (probability-based) monitoring design for Wadeable Rivers and Streams. EPA views this design as an important component of an integrated monitoring framework that uses multiple monitoring and assessment tools to address the full range of monitoring objectives. A randomized design is an efficient way to determine the extent to which a state's waters support healthy aquatic communities because it allows inferences on the condition of the entire resource class (e.g., Wadeable Streams) based on a representative sample. Once fully implemented it can result in significant cost savings over a census-based approach to achieving comprehensive assessment of all water resources. It can also be a cost-effective means of determining trends over time in the extent of waters that are healthy or degraded.
- Application of core indicators in a consistent manner. The use of a consistent suite of core indicators is critical to enabling data collected by multiple states for shared ecoregions to be aggregated to describe the condition of aquatic resources with minimal sampling effort. Ensuring comparable measurement and assessment protocols is also critical for aggregating indicator data. In the short-term, this request for proposal places priority on use of standardized field and lab protocols as described in Appendix D. In the future EPA expects that efforts to evaluate method comparability and document method performance characteristics will facilitate the integration of data collected using a variety of field and analytical protocols. This demonstration emphasizes the use of biological indicators to describe aquatic conditions because they integrate the effects of multiple stressors over time. While EPA encourages the use of multiple assemblages for robust biological assessments, macroinvertebrate assemblage was selected as the core biological indicator for this project because of its universal use in biological assessment programs across the country and its suitability for larger-scale study units such as the level II ecoregion.
- Collaborative assessment of data. This step involves interpretation of the data to differentiate among aquatic conditions ranging from high quality natural conditions to low quality severely altered conditions. This effort will likely include evaluation of several approaches for analyzing and reporting the assessment results at the ecoregion level II scale and then aggregating up to a regional and national scale. It is envisioned that participants will build on existing efforts of states, EPA, USGS and other organizations. Participants may explore new approaches such as the Tiered Aquatic Life Workgroup's proposed framework for plotting a range of reference condition expectations against a biological condition gradient that is independent of, yet explicitly linked to, individual state water quality standards.

Many states are already implementing or participating in randomized designs for monitoring of biological condition of rivers and streams. Some of these states need additional resources to complete data analysis, interpretation, and presentation/reporting. Proposals that document the existence of data collected and analyzed using randomized designs and methods described in Appendix D are eligible to seek funding for data analysis, interpretation, and reporting.

Following is a list of the basic elements or activities involved in this demonstration project. To help implement this demonstration project, EPA commits to provide a significant amount of

technical assistance to cooperators, in addition to the funds disbursed through the cooperative agreements. The bulk of EPA technical assistance EPA will offer includes network design, indicator selection, field methods training, data management, analysis and reporting.

- I. Monitoring objectives – The objective of this demonstration is to generate statistically valid estimates of the biological health and related causes and sources of degradation of wadeable rivers and streams at the ecoregion level II scale and to aggregate these estimates to describe the condition of wadeable rivers and streams at the national scale.
- 10 II. Network design - EPA will generate a randomized design that identifies monitoring sites within each level II ecoregion. In addition, EPA will provide interested states with a randomized network design for state-scale or finer characterizations. The design, developed in collaboration with the applicants will identify the core sites that support the ecoregion level II scale assessment and supplemental sites that support state or finer scales.
- 20 III. Indicators - Appendix D describes a core suite of indicators and standard field and lab methods to support the basic goals of the demonstration project. Where an applicant can demonstrate that the methods in Appendix D are not suitable for certain types of waters in specific ecoregions, applicants may propose alternative methods that would be applied for those types of waters throughout the specific ecoregion and would generate comparable data to the methods in Appendix D. Applicants are encouraged to include additional core and supplemental indicators (as described in the *Elements of a State Water Monitoring and Assessment Program*) to address specific questions and to generate more robust assessments.
- 30 IV. Field data collection and lab analysis, including documentation of standard operating procedures (SOPs) and quality assurance/quality control (QA/QC) protocols – Applicants may request provision of in-kind/contractor services from EPA to perform field sampling and/or laboratory analysis. For applicants choosing in-kind/contractor services, EPA will provide access to field crews and/or laboratory services and will oversee associated QA/QC activities for field sampling and laboratory analysis. For applicants choosing to perform sampling and laboratory analysis themselves, EPA will work with applicants/cooperators to develop SOPs and quality assurance project plans (QAPPs) using the EPA documents as a template. These documents are critical to facilitating collection of comparable data of documented quality. EPA will also provide training in field sampling protocols. Any laboratory selected to conduct analyses with samples for this project must demonstrate that they can meet the quality standards presented in the QAPP. This includes initial demonstrations of technical capability and performance evaluations. When possible, field samples should be promptly shipped (generally within a week) to the approved analytical or processing laboratories. These facilities are generally better geared to properly hold the samples while they await analyses. At the laboratory, samples will be processed in accord with the project QA/QC guidelines. Each laboratory is expected to review their final data for completeness, accuracy, and precision to assure that the basic quality criteria are met prior to submitting their final data report.
- 40 V. Data management – EPA will provide support for data management to facilitate rapid access to data and transfer of data into STORET

10 VI. Data analysis and interpretation – EPA will work with grantees/cooperators and other stakeholders to develop general protocol(s) to differentiate among aquatic biological conditions ranging from high quality natural conditions to low quality severely altered conditions. This effort will likely include evaluation of several approaches for analyzing and reporting the assessment results at the ecoregion level II scale and then aggregating up to a regional and national scale. It is envisioned that participants will build on existing efforts of states, EPA, USGS and other organizations, including the Tiered Aquatic Life Workgroup’s framework for plotting a range of reference condition expectations against a biological condition gradient that is independent of, yet explicitly linked to, individual state water quality standards.

20 VII. Reporting – EPA will work with grantees/cooperators and other stakeholders to develop ecoregion level II scale and national reports that present the results of the demonstration study in combination with the results of data collected by states in Regions 8, 9, and 10. The report will describe the extent that Wadeable Streams support healthy aquatic communities and will describe water quality and habitat characteristics associated with healthy and degraded resources. To the extent possible, the report will describe additional insights gained from analyzing additional data that cooperators and other stakeholders bring to the analysis.

1.3 Future Priorities

30 The long-term goal of EPA assistance is to build or enhance state capacity to implement an integrated monitoring framework that applies multiple tools to most cost-effectively address the full range of water quality management decision needs, for all water resource types and uses, at appropriate scales. EPA’s initial priority is to use these assistance agreements to bring all states to same basic program level first, focusing on comprehensive coverage and sound science. EPA’s secondary goal is to provide incentive for innovation in strengthening state monitoring and assessment programs, innovations that implement cost-effective monitoring frameworks that support the full range of monitoring objectives at relevant scales.

As additional resources are available, EPA plans to expand these assistance agreements to support state implementation of other components of an integrated monitoring framework as described in the *Elements of a State Monitoring and Assessment Program*, (EPA 2003). Additional activities EPA hopes to support include:

- Expansion of random sampling to other water resource types and other designated uses, as appropriate;
- Integration of additional monitoring and assessment tools to predict the locations of vulnerable waters, to confirm site-specific water quality condition, to develop and refine water quality standards;
- Expansion of accessibility to and use of data collected by the state and other sources to support communication and decision making;
- Expansion of partnerships to facilitate more efficient use of monitoring resources.

2. Award Information

2.1 Statutory Authority

The statutory authority used for this initial round of State Monitoring, Assessment and Reporting Program Grants and Cooperative Agreements is section 104(b)(3) of the Clean Water Act (CWA). Section 104(b)(3) of the CWA restricts the use of these grants funds to the following:

conducting or promoting the coordination and acceleration of research, investigations, experiments, training, demonstrations, surveys, and studies relating to the causes, effects, extent, prevention, reduction, and elimination of water pollution.

The general award and administrative process for State Monitoring, Assessment and Reporting Program Grants and Cooperative Agreements is governed by regulations at 40 CFR parts 30 and 31 “Uniform Administrative Requirements for Grants and Agreements with Institutions of Higher Education, Hospitals, and Other Nonprofit Organizations” and “Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments”). This request for applications outlines the administrative and programmatic procedures specific to the State Monitoring, Assessment and Reporting Program Grants.

2.2 Funds Available for Award

A total of approximately \$4,000,000 are available for award under this current request for proposal. EPA expects to award between 20 and 40 assistance agreements ranging in value from \$50,000 to \$500,000. It is envisioned that the larger awards will go to consortia of multiple states and tribes, while applications from single jurisdictions will receive smaller awards. Assistance agreements may result in transfer of funds to the awardee or provision of in-kind or contract services funded by EPA at the request of the awardee. Recognizing the need to support enhancements of state monitoring programs, EPA will continue to issue requests for applications as resources permit.

3. Eligibility Information

3.1 Eligible Applicants

State and tribal water resource protection programs are eligible to apply for cooperative agreements under this RFP. Other organizations eligible for funding under CWA Section 104(b)(3) such as interstate commissions or associations, intertribal consortia, universities, municipalities, and non-profit organizations may also apply in cooperation with states and tribes. Consortia or coalitions of multiple states or tribes must identify which eligible organization will be the recipient of the assistance agreements, and which eligible organizations(s) will be subawardees of the recipient. Applicants must meet the requirements of 40 CFR part 35.504 to be eligible for direct funding.

3.2 Coalition Applications

Groups of two or more eligible applicants may choose to form a coalition and submit a single application for these assistance agreements. Consortia or coalitions must identify which eligible organization will be the recipient of the assistance agreements, and which eligible organizations(s) will be subawardees of the recipient. Applicants must meet the requirements of 40 CFR part 35.504 to be eligible for direct funding. Subawards must be consistent with the definition of that term in 40 CFR 30.2 (ff). Any contracts for services or products funded with EPA financial assistance must be awarded under the competitive procurement provisions of 40 CFR Part 30. The recipient must administer the assistance agreement, is accountable to EPA for proper expenditure of the funds, and will be the point of contact for the coalition. As provided in 40 CFR 30.22 (gg), subrecipients are accountable to the recipient for proper use of EPA funding.

3.3 Match Requirements

Projects with matching funding, in kind services, or other support are encouraged. Matching funds are considered grant funds. They may be used for the reasonable and necessary expenses of

carrying out the work plan. Any restrictions on the use of grant funds (i.e., prohibition of land acquisition with grant funds) also apply to the use of matching funds.

4. Application and Submission Information

10 Eligible applicants are invited to submit a pre-proposal application to the appropriate Regional Monitoring Coordinator (see Appendix C for the name and address of the Regional Monitoring Coordinators). Applications may be submitted electronically or in hard copy. Headquarters and Regional Office staff will review the applications received by the submission deadline and select the most competitive projects for funding. Projects will be evaluated based on the extent they meet the selection criteria and reflect the program priorities described in this request for applications. Both the quality and quantity of the applications will play a significant role in the selection of applications for funding. EPA will retain the applications for 6 months and may reconsider proposals if additional resources become available.

4.1 Address to Request Application Package

20 Contact: Susan Holdsworth,
Office of Wetlands, Oceans, and Watersheds
Assessment and Watershed Protection Division (MC 4503T)
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460
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(202) 566-1187

4.2 Content and Form of Application Submission

Interested applicants must submit a pre-proposal application, which includes a brief work plan. An approvable pre-proposal application must include the following:

- 30
1. Cover page that identifies the applicant, a point of contact, mailing address, telephone, fax, and email of the contact and the date the proposal was submitted
 2. Summary work plan (1-3 pages) that describes the applicant's commitment to participate in the demonstration project activities described in Section 1.2
 3. Time-line;
 4. Budget and estimated funding amounts for each work plan activity, see Appendix F for example budget format;

5. Application Review Process

40 Grant funds are awarded through a competitive process. Funding decisions are made by EPA Headquarters and Regional Staff and are based on the quality of the pre-proposals received and adherence to the selection criteria. EPA project officers will be from EPA Regional offices to the extent staff are available.

EPA typically receives requests for funding far in excess of available funds, therefore EPA cannot provide grant funds to all applicants. EPA will retain the pre-proposals for 6 months and may reconsider pre-proposals if additional grant resources become available.

5.1 Selection Criteria

For this initial request for pre-proposal, priority in the selection process will be given to projects consistent with the priority activities described in Section 1.2. The following list provides criteria

EPA will use for evaluating and scoring proposals that meet the eligibility requirements and propose activities consistent with the priorities described in Section 1.2:

- I. Project includes use of randomized (probability-based) design sites identified by EPA that contributes to assessment of the aquatic condition of wadeable rivers and streams at the ecoregion level II scale (20 points)
- II. Project includes use of core indicators and standard protocols described in Appendix D (20 points)
- 10 III. Project collects field data during the 2004 index period and produces data to support description of level II ecoregion condition by June 2005. (20 points)
- IV. Project promotes collaborative partnerships and/or leverages additional expertise or resources. (20 points)
- V. Project describes linkage to efforts to refine the state's waterbody classification system and water quality standards designated use classes, numeric and narrative criteria, and assessment methods to improve the precision and accuracy of water quality standards attainment decisions. (20 points)
- 20

5.2 Review and Selection Process

Review panels comprised of EPA Regional Monitoring Coordinators and EPA Monitoring Branch staff will review the pre-proposals. Applicants will be screened to ensure that they meet all eligibility criteria and will be disqualified if they do not meet the criteria. All proposals from eligible applicants will be reviewed, evaluated and ranked by a review panel based on the selection criteria described in section 5.1. Final selection of pre-proposals also may be influenced by other factors including geographic distribution, national priority, cost, availability of funds. Successful projects selected for funding will be assembled and the respective applicants will be notified. Final proposals will be requested and the administrative process for award of the cooperative agreement will begin.

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5.3 Anticipated Announcement and Award Dates

Based on review of pre-proposals, successful applicants will be notified as close to January 15, 2004 as possible. Final proposals will be due within 6 weeks of notification. Awards will be made within 2- 4 weeks of EPA's receipt of the applicant's final proposal.

6. Award Administration Information

40 6.1 Award Notices

Successful applicants will be notified by telephone and in writing that their pre-proposal was selected. This notification is not authorization to begin performance. Applicants will be provided a full grant application and will be asked to complete this package within 6 weeks. The final award will be based on the cooperator's final application. The notice of award signed by the grants officer (or equivalent) is the authorizing document and will be provided to the applicant's designated point of contact through postal mail. Applicants whose pre-proposals are not selected during this grant cycle will be notified by mail and their proposals will be retained for 6 months.

6.2 Administrative and National Policy Requirements

QA/QC and peer review will be a required element of these cooperative agreements (see 40 CFR 31.45). EPA is developing a national Quality Assurance Project Plan to support this project. Applicants will be expected to adopt this plan or develop and implement similar QA/QC protocols. QA/QC requirements apply to the collection of environmental data. Environmental data are any measurements or information that describe environmental processes, location, or conditions; ecological or health effects and consequences; or the performance of environmental technology. Environmental data include information collected directly from measurements, produced from models, and compiled from other sources such as databases or literature. Applicants should allow sufficient time and resources for this process. The applicant is encouraged to work with the appropriate EPA quality staff to determine the appropriate QA/QC practices for the project. If the applicant has an EPA-approved quality assurance project plan and it covers the project in the application, then they need only reference the plan in their application. Contact the appropriate Regional or Headquarters Grant Coordinator (Appendix C) for referral to an EPA quality assurance/quality control staff.

6.3 Reporting

State Monitoring, Assessment and Reporting Program Grants and Cooperative Agreements are currently covered under the following EPA grant regulations: 40 CFR part 30 (Institutions of Higher Education, Hospitals, and Non-profit organizations and 40 CFR part 31 (States, Tribes, interstate agencies, intertribal consortia and local governments) including performance and financial reports (see 40 CFR 30.51, 30.52, 31.40 and 31.41). In negotiating these awards, EPA will work closely with recipients to incorporate appropriate performance reporting requirements into each assistance agreement consistent with 40 CFR 30.51 and 31.40. These regulations provide some flexibility in determining the appropriate content and frequency of performance reports. The EPA Office of Water requires the award recipient to report at a minimum on a quarterly basis.

7. Agency Contacts

For questions or clarification regarding this demonstration project, contact your Regional Monitoring Coordinator (listed in Appendix C) or the Monitoring Branch Point of Contact listed below:

Monitoring Branch Point of Contact

Contact: Susan Holdsworth,
Office of Wetlands, Oceans, and Watersheds
Assessment and Watershed Protection Division (MC 4503T)
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460
Holdsworth.Susan@epa.gov
(202) 566-1187

Appendix A – Grant Restrictions

- § Based on experience gained from previous years and policy and regulation, we offer the following comments/restrictions on funding eligibility.
- § Universities that are agencies of State government are eligible to receive grant funds from the Regional Offices. Universities must provide documentation acceptable to the EPA Regional Office to demonstrate that they function as a State agency. Universities (that are not chartered as a part of State government) are not eligible for direct funding from the

Regional Offices. Also, any award recipients may award such entities contracts in accordance with 40 CFR 31.36, and subgrants in accordance with 40 CFR 31.37. The State, Tribe, local agency, or national non-profit organization should not simply pass through funding to an organization that is not eligible to receive funding directly. Land grant schools do not automatically qualify for direct funding as an agency of state because of their status as a land grant school.

§ This grant program cannot fund land acquisition or purchase of easements. However, this program may support research, investigations, experiments, training, demonstrations, surveys, and study efforts directed at identifying areas for acquisition, which are intended to help address water pollution problems.

§ Each grant project must be completed with the initial award of funds. Recipients should not anticipate additional funding beyond the initial award of funds for a specific project. Eligible applicants should request the entire amount of money needed to complete the project in the original application. Each grant should produce a final, discrete product. Funding and project periods can be for more than one year.

§ Grant funds cannot be used to fund an honorarium under this program.

§ Any field work or research-type activities are limited to activities that have a direct, demonstrated link to program development or refinement included in the application.

§ Purchase/lease of vehicles (including boats, motor homes) and office furniture is not eligible for funding under this program.

§ Grant funds cannot be used to pay for travel by Federal agency staff unless travel costs are related to the grant project.

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Appendix C – Regional Monitoring Contacts

Region I (CT, MA, ME, NH, RI, VT)

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Region III (DE, DC, MD, PA, VA, WV)

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Appendix D -- Core Indicators and Measurement Protocols

The following tables describe the core indicators and measurement protocols that are necessary for participation in the demonstration project. For more information about implementation of these protocols, refer to the field operations manual and quality assurance project plan cited in the references section and available at our web site: www.epa.gov/owow/monitoring

Table 1. Macroinvertebrate Sampling Protocol & Data Analysis

<u>Sample Unit</u>	40-channel width (CW) sampling reach (or 150 m minimum length) centered on site coordinates (X-site)
<u>Sampling Gear</u>	D-frame kick net (500 micron mesh, 1 ft wide or 30 cm)
<u>Sample Area & Duration</u>	<p>“Reachwide” sample: 1 point sample taken at each of 11 equidistant transects (spaced 4 CW apart). At each transect, sampling point selected at either 25%, 50%, or 75 % of channel width. This approach allows for a consistent sample to be obtained at all stream sites.</p> <p>At each point, one of two type of samples is collected:</p> <p>If water is flowing- a single 1 ft² kick sample is obtained. Position net, scrub all large substrate particles into net and remove particles from sampling quadrat. Disturb remaining substrate within quadrat for 30 seconds. All kick samples composited.</p> <p>At transects where slack water is present- a single 1 ft² “sweep” sample is obtained. Disturb a 1 ft² section of stream bottom for 30 seconds while sweeping the kick net repeatedly through the cloud of debris. All sweep samples composited together with kick samples (end up with one composite sample per stream reach)</p>
<u>Sample Processing</u>	Sort in field to remove hard substrate and as much other debris as possible, using a 500-mesh sieve bucket or soil sieve (US Std. #35). Transfer sample into one or more 1-L (or suitable sized) leakproof HDPE jar. Remove as much water as possible and completely fill with 95% ethanol to preserve.
<u>Taxonomic ID</u>	Samples are delivered to laboratory for sorting, enumeration, and identification (“Large and Rare” search, followed by subsampling known areas of gridded tray until 500 organisms (±10%) are obtained. ID to genus level of taxonomic resolution.
<u>Habitat Information</u>	Obtained from habitat characterization data and water quality analyses
<u>Quality Control</u>	<p>In the field: Ensure samples are labeled clearly both inside and out and are properly preserved. Some sites will be re-visited during the index period to obtain information on temporal and analytical variability. Field visits by qualified personnel to ensure consistency among different field crews.</p> <p>Laboratory: Periodic checks for sorting completeness, internal taxonomic accuracy, complete re-sample of 5% of samples (subsample, sort, ID), annual QA/QC data summary reports.</p> <p>Data validation: Data base is reviewed to ensure consistency in nomenclature used, to identify “non-distinct” taxa, to identify and explain outlier values of counts, and that data bases received from different laboratories are consistent and comparable with each other in preparation for merging.</p>
<u>Data Analysis</u>	<p>Data are suitable for developing metrics describing various structural and functional attributes of the assemblage, or for developing predictive models of species occurrence (e.g., RIVPACS) Candidate metrics are evaluated for responsiveness to stressors, range of values, reproducibility, redundancy with other candidate metrics, and ability to distinguish “reference” from “impaired” condition.</p> <p>Scores for each metric are calculated based on the expected value for the associated stream class. Values should be sufficiently conservative so that good conditions or non-impairment is verified; values below thresholds are considered to be suspect for further investigation</p> <p>Metrics currently calculated using routines developed in SAS– but other applications (e.g., EDAS) could also be used.⁴</p>

Table 2. Physical habitat measures for riverine systems

Component	Description
CONTINUOUS PARAMETERS	
Thalweg Profile	Measure maximum depth and classify habitat and presence/absence of soft/fine sediments at 10-15 equally spaced intervals between each of 11 channel cross-section (100-150 along entire reach).
Woody Debris	Between each of the channel cross sections, tally large woody debris numbers within the bankfull channel according to size classes. Woody debris is tallied over the distance between each cross-section and the next cross-section upstream.
11 TRANSECT PARAMETERS	
Cross-Section (width and depth)	Measure channel cross section dimensions (wetted width & depth). Depth is measured at the same 5 equally-spaced points on each cross-section. The cross-section is defined by laying the surveyor's rod or tape to span the wetted channel.
Substrate Size	Substrate size is visually estimated for 5 particles taken at 5 equally-spaced points on each cross-section.
Gradient	Gradient is measured using a clinometer.
Sinuosity	Sinuosity is measured by compass backsight.
Instream Fish Cover	Fish cover types, aquatic macrophytes, and algae are observed within channel 5m upstream and 5m downstream from the cross-section stations. The boundaries for visual observations are estimated by eye.
Canopy Cover	Canopy cover is measured using a densiometer.
ALTERNATING TRANSECT PARAMETERS	
Bank angle, undercut and incision	Measure bank angle, undercut and incision.
Human disturbance	Observe and record human disturbances and their proximity to the channel. Human disturbance are observed 5m upstream and 5m downstream from the course section station. They extend shoreward 10m from left and right banks. The boundaries for visual observations are estimated by eye.
Riparian vegetative zone	Visually estimate areal cover class and type (e.g., coniferous) of riparian vegetation in canopy, mid-layer, and ground cover. Riparian vegetation is observed 5m upstream and 5m downstream from the cross section station. They extend shoreward 10m from left and right banks. The boundaries for visual observations are estimated by eye.
REACH PARAMETERS	
Discharge	In medium and large streams, measure water depth and velocity (@ 0.6 depth with electromagnetic or impeller-type flow meter) at 15 to 20 equally intervals across one carefully chosen channel course-section. In very small streams, measure discharge with a portable weir or time the filling of a bucket.
Reach geomorphic classification	Determine a channel morphology class for the entire reach (Montgomery and Buffington, 1993)
Percent surface fines	At each of macroinvertebrate sampling locations, one estimate of surface fines will be using a grid and intersection count of underlying sand (or small) substrate.

Table 3. Ambient water quality measures

IN-SITU MEASURES			
Parameter	Method		
Temperature	Thermometer in stream/YSI meter (calibrated with NIST thermometer in lab		
pH	Bechman meter/Orion mdoel 250A		
Dissolved oxygen	Winkler titration or verified YSI meter		
Conductivity	YSI or Beckman meter		
LABORATORY ANALYSIS			
Parameter	Method	Holding Time	Preservative
Total N	Total persulfate nitrogen	28 days	4°C, pH<2 (H ₂ SO ₄)
Total P	Persulfate digestion	28 days	4°C, pH<2 (H ₂ SO ₄)
Nitrate-Nitrite	Automated Cd reduction	28 days	4°C, pH<2 (H ₂ SO ₄)
Sulfate	Ion Chromatography	28 days	4°C
Chloride	Ion Chromatography	28 days	None
TSS	Filtered weight	7 days	4°C
Ammonia	Phenate	28 days	4°C, pH<2 (H ₂ SO ₄)
ANC	Alkalinity Titration	14 days	4°C
DOC	TOC filtration	28 days	4°C, pH<2 (H ₂ SO ₄)

Appendix E – References

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Appendix F – Example Budget Format

While there are some fixed costs associated with implementation of the demonstration project, most of the costs are associated with field sampling and laboratory analysis of samples. Because the location of sampling sites has not yet been determined by EPA, the exact number of sites falling within a state or within an applicants scope is unknown. Applicants should estimate costs based on an assumption of 10 sampling locations per state or 50 sampling locations per level II ecoregion.

10	Project Activity	Estimated Costs	Comments
	Design	\$ 0	Provided by EPA
	QAPP/SOPs	\$	Estimate to implement quality control activities described in EPA programmatic QA plan for field sampling and lab analysis, unless proposal requests EPA provide in-kind/contractor services for field sampling or lab analysis
	Training	\$	Estimate to participate in training sessions for field methods
	Equipment	\$	
	Site access	\$	Estimate to contact land owners, obtain necessary permits, etc. unless applicant requests EPA provide in-kind services for field sampling
20	Field sampling, includes -travel to site ~2 hrs for macroinvertebrate ~1 hr. for phys/chem. ~6 hrs. for physical habitat -preservation and shipping	\$	Per site estimate to be multiplied by number of sites that fall within the state or applicants' scope of work. Final costs will be developed once EPA identifies the locations of sample sites within each level II ecoregion. Each level II ecoregion will have 50-60 sites randomly distributed across it.
	Lab analysis, includes ~20 hrs for macroinvertebrate ~2 hr. for phys/chem. ~6 hrs. for physical habitat	\$	Per sample estimate to be multiplied by number of sites
	Data management	\$0	Provided by EPA, cooperator sends field sheets and lab results to EPA
	Data analysis/interpretation	\$	Participate in discussions and meetings about development of consensus based approach to analyzing data and reporting condition at ecoregion level II and national scale
	Reporting	\$	Participate in development or review of reports
30	Other		